

**LISTING OF THE CLAIMS:**

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1    1. (Currently Amended) A redundant hub-spoke virtual private LAN (VPN)
- 2    having a plurality of emulated LANs (ELANs), each connected at a provider edge
- 3    (PE) node over a service provider network, comprising:
- 4        a first hub node serving client equipment (CE) devices connected on a first
- 5    ELAN, connected at a first of said PE nodes, capable of performing as a root
- 6    bridge node of the VPN;
- 7        a spoke node connected to a second of said PE nodes, serving CE devices
- 8    on a second ELAN;
- 9        ~~a first point-to-point link L1 for interconnecting said first hub node and~~
- 10   ~~said spoke node;~~
- 11        ~~means for detecting a failure of said first point-to-point link L1, and for~~
- 12   ~~transmitting a corresponding failure notice;~~
- 13        a second hub node connected to a third of said PE nodes, interconnected
- 14   with said first hub node through said service provider network and said first and
- 15   third PE nodes ;and
- 16        ~~means for establishing a redundant point-to-point link L2 from said~~
- 17   ~~second hub node to said spoke node in response to said failure notice~~

18 wherein said first PE node and said second PE node are capable of  
19 connecting through said service provider network to form a first point-to-point  
20 link L1 interconnecting said first hub node and said spoke node.

21 wherein at least one of said first, second and third PE nodes is capable of  
22 detecting a failure associated with said first hub node and, in response to said  
23 detecting, of sending a failure notice.

24 wherein said third PE and said second PE are capable, in response to said  
25 failure notice, of establishing a redundant point-to-point link L2 through said  
26 service provider network, L2 interconnecting said second hub node and said  
27 spoke, and

28 wherein, in response to said failure notice, said second hub node is  
29 capable of performing as the root bridge node of the VPN.

1 2. (Previously Presented) The redundant hub-spoke VPN of claim 1, wherein  
2 said second hub node operates as a spoke node of first said hub node based on an  
3 absence of said failure notice.

1 3. (Previously Presented) The redundant hub-spoke VPN of claim 1, wherein  
2 said first hub node is capable of operating as a spoke node of said second hub  
3 node in response to said failure notice.

4. (Canceled)

1 5. (Currently Amended) The redundant hub-spoke VPN of claim 1, further  
2 comprising a second PE node interfacing said spoke node and said service  
3 provider network,

4 wherein said establishing a redundant point-to-point link L2 in response  
5 to said failure notice includes, said first PE node signaling said second PE node  
6 to establish a second point-to-point link with said second hub node, and to re-  
7 map the traffic from said second hub node over said second point-to-point link  
8 and, in response, said second PE node establishes the second point-to-point link  
9 with said second hub node, and re-maps the traffic from said second hub node  
10 over said second point-to-point link.

1 6. (Currently Amended) The redundant hub-spoke VPN of claim 1, wherein ~~the~~  
2 ~~access link between~~ said spoke node and said second PE node are connected by  
3 an access link including an aggregated bundle of links comprising a redundant  
4 link.

1 7. (Previously Presented) The redundant hub-spoke VPN of claim 6, wherein  
2 connectivity between said second PE node and said spoke node is maintained  
3 when a link on said respective aggregated bundle is interrupted.

1 8. (Previously Presented) The redundant hub-spoke VPN of claim 7, wherein the  
2 loss of a link in said aggregated bundle is transparent to said spoke node.

9. (Currently Amended) In a hub-spoke virtual private LAN (VPN) of the type having a plurality of emulated LANs (ELANs), each connected at a service provider edge (PE) node of a service provider network over an access link, the VPN having a first hub node, connected to the service provider network at a first PE node and a first spoke node, connected to the service provider network at a second PE node, a method for recovering the traffic in case of a failure, comprising:

establishing the first hub node as the root bridge node of said VPN;

transmitting traffic from the [[a]] first hub node to the [[a]] first spoke node ~~of said first hub node~~ over a first point-to-point link established between the [[a]] first PE node ~~at said first hub node~~ and the [[a]] second PE node ~~at said first spoke node of said first hub node;~~

providing a second hub node, connected to the service provider network at ~~having~~ a third PE node, connected to said first hub node by a second point-to-point link between said first PE hub node and said third PE ~~second hub~~ node;

at said second PE node, monitoring ~~a~~ the traffic on said first point-to-point link to detect a fault; and, responsive to said detecting a fault ~~on said first point-to-point link,~~ signaling said fault from said second PE node, establishing said second hub node as the root bridge node of said VPN, and establishing to said first PE node, and transmitting traffic from the first hub node to the first spoke node of said first hub node by forming a redundant link comprising the second point-to-point link from the first hub node to the second hub node and form a

23 third point-to-point link established between the third PE node at said second  
24 hub node and said second PE node.

1 10. (Currently Amended) The method of claim 9, wherein said transmitting  
2 traffic from ~~the~~ the ~~[[a]]~~ first hub node to ~~the~~ the ~~[[a]]~~ spoke node of said first hub node  
3 over a first point-to-point link comprises:

4 at said first hub node, bridging the traffic destined to said spoke node of  
5 said first hub node toward said first PE node;

6 at said first PE node, tunneling the traffic received from said first hub  
7 node along said first point-to-point link to said second PE node; ~~[[.]]~~

8 at said third PE node, mapping the traffic received over said first point-to-  
9 point link to said first spoke node of said first hub node; and

10 at said first spoke node of said first hub node, bridging the traffic received  
11 from said second PE node.

11. (Canceled).

1 12. (Previously Presented) The method of claim 9, wherein said signaling said  
2 fault from said second PE node to said first PE node comprises using a Layer 1  
3 signaling protocol.

1 13. (Currently Amended) The method of claim 9, further comprising operating  
2 said second hub node as a second spoke node of said first hub node absent said  
3 monitoring detecting a fault condition.

- 1 14. (Currently Amended) The method of claim 9, further comprising:  
2 responsive to said detecting a fault ~~on said first point-to-point link~~  
3 operating said first hub node as a spoke node of said second hub node.
- 1 15. (Previously Presented) The method of claim 9, wherein first and second  
2 point-to-point links connections are point-to-point Ethernet tunnels.
- 1 16. (Previously Presented) The method of claim 9, wherein the access link  
2 between said second PE node and said first spoke node of said first hub node is  
3 an aggregated bundle of links comprising a redundant link.
- 1 17. (Previously Presented) The method of claim 16, wherein connectivity  
2 between second PE node and said first spoke node of said first hub node is  
3 maintained when a link on said aggregated bundle is interrupted.
- 1 18. (Previously Presented) The method of claim 17, wherein the loss of a link in  
2 said aggregated bundle is transparent to said first spoke node.
- 19 - 37. (Canceled)